

## **ADJUSTABLE BOOK HOLDER ASSEMBLY**

### **Cross Reference to Related Applications**

This application claims the benefit of U.S. provisional Serial No. 60/531,115, filed December 19, 2003.

### **Background of the Invention**

This invention concerns floor supported book holders of the type described in applicant's earlier published application WO99/09859. In this type of book holder a book, magazine, etc., is releasably held on a support piece so as to allow pages of an opened book, magazine, etc., to be conveniently turned and held.

The support piece is itself supported so as to be positioned in various adjusted positions to be viewable when a user is in different positions. For example, the user may be reclining on a bed or sofa and the support is swung over the user and tilted downwardly to various angles as desired. Or, the user may be seated with the holder on one side, the support then positioned tilted upwardly at various angles.

It would be desirable to allow even greater versatility in adjustably positioning the book, magazine, etc., as there are a number of positions into which a user may wish to place the held document that heretofore has not been able to be done by such book holders.

Another consideration is the desirability of minimizing bulk of the holder so as to not be overly obtrusive in the home or office setting.

An attractive appearance is also desirable, as with any other home or office furnishing.

1 Furthermore, it would be advantageous if the holder assembly could provide  
2 additional capabilities for the user.

3 It is an object of the present invention to provide a floor supported book holder  
4 assembly of the type described of improved versatility and utility and having enhanced aesthetic  
5 appeal.

### 6 7 Summary of the Invention

8 The above objects and other objects which will become apparent upon a reading  
9 of the following specification and claims are achieved by a book holder assembly in which a  
10 book support is mounted to a swing arm extending from a horizontally extending reversely  
11 curved segment of an upper member of an upright assembly. The upright assembly is secured to  
12 a weighted base having casters supporting the same on a floor surface. A swing arm pivot  
13 connection to a free end of the upper member horizontally extending segment allows tilting of  
14 the book support about a horizontal axis. The upper member is rotatable in a lower member to  
15 allow the book support to be moved closer or further away to the upright assembly by folding or  
16 unfolding the swing arm and horizontally extending segment together or apart.

17 In addition, the book support is rotationally mounted to the outboard end of the  
18 swing arm for adjustable pivoting adjustment about an axis transverse to the longitudinal axis of  
19 the swing arm. This mounting may comprise a disc mounted to the swing arm end and urged  
20 towards the center of the book support by compression of a spring against an interposed bearing  
21 disc by a headed fastener. This arrangement creates a frictional holding force enabling the book  
22 support to be secured in any selected pivoted position about the transverse pivot axis.

1           The book support can thus be pivoted about the axis of the fastener by  
2   overcoming the frictional resistance generated by the disc pressed against the rear surface of the  
3   support.

4           This pivoting enables selective positional adjustment of the book support about  
5   the transverse axis to an infinite extent, allowing the book holder to be adjusted to be in a  
6   horizontal position even if the swing arm sags from horizontal due to heavy weight of the held  
7   book. Also, it allows sideways positioning of the book support which may be desired if the user  
8   is reclined alongside the book holder assembly to position the held book or magazine sideways.

9           In addition, by pivoting the book support upside down and then flipping it over  
10   about its horizontal axis, the book support can be optionally positioned to the left or the right of  
11   the upright without any disassembly.

12          A separate friction adjustment knob is also provided to enable convenient setting  
13   of the friction level stabilizing the upper upright member in any selected position through its  
14   swinging range of motion.

15          The upper member of the upright assembly has a reversely curved segment  
16   connected to the vertical straight portion which increases the range of vertical adjustment of the  
17   book support position.

18          Another improvement is the provision of a cast iron platform with a cover placed  
19   thereover together forming a weighted base for the book holder assembly which is substantially  
20   trimmer and less bulky than the prior design using water filled bags inside the base. At the same  
21   time, the cast iron platform allows a more rigid support for the upright assembly.

22          An optional book shelf-rack support structure is provided slidably emplaceable

1 over the upright assembly to enhance the aesthetic appeal as well as the usefulness of the book  
2 holder assembly.

#### 3 4 Description of the Drawings

5 Figure 1 is a pictorial view of the adjustable book holder assembly according to  
6 the present invention.

7 Figure 2 is an enlarged exploded pictorial view of the upright assembly clamping  
8 connection incorporated in the book holder assembly shown in Figure 1.

9 Figure 3 is an enlarged exploded pictorial view of the pivot fitting mounted to the  
10 swing arm and a horizontal segment of the upper member of the upright assembly included in the  
11 book holder shown assembly in Figure 1.

12 Figure 3A is a fragmented view of one end of a swing arm and on an exploded  
13 retention pin used to engage a slot therein.

14 Figure 4A is an enlarged pictorial view of the rotatable connection between the  
15 book support and swing arm end included in the book holder assembly shown in Figure 1.

16 Figure 4B is a view of the section 4B-4B taken in Figure 4A.

17 Figure 5 is an exploded pictorial view of the base components included in the  
18 book holder assembly shown in Figure 1, with a fragmentary portion of the lower member of the  
19 upright assembly also included.

20 Figure 6 is a pictorial view of a book holder assembly according to the present  
21 invention, showing the book support adjusted into a sideways position.

22 Figure 7 is a pictorial view of a book holder assembly according to the present

1 invention with an optional book shelf-rack support structure installed thereon.

### 3 Detailed Description

4 In the following detailed description, certain specific terminology will be  
5 employed for the sake of clarity and a particular embodiment described in accordance with the  
6 requirements of 35 USC 112, but it is to be understood that the same is not intended to be  
7 limiting and should not be so construed inasmuch as the invention is capable of taking many  
8 forms and variations within the scope of the appended claims.

9 Referring to Figure 1, an adjustable book holder assembly 10 according to the  
10 present invention has a two part telescoped upright assembly 18 including a lower tubular  
11 member 12 secured to a base assembly 14 to be held in an upright vertical position and an upper  
12 upright member 20. Four casters 16 on the base assembly 14 rest on a floor surface.

13 An upper member 20 of the upright assembly 18 includes a vertically extending  
14 bottom segment 21 inserted into the lower member 12 and clamped at one end to the upper end  
15 of the lower tube member 12 with a clamping assembly 22.

16 The upper member 20 also includes reversely curved upper segment 24 extending  
17 out horizontally from the bottom segment 21, and a straight horizontal end segment 26. A  
18 horizontal swing arm 30 is also connected to the straight end 26 by a pivot connection 28 to  
19 create an articulation joint allowing the swing arm 30 and segment 26 to be folded towards or  
20 away from each other to vary the distance a book support 44 is from the upright assembly 18.  
21 However, this articulation also allows rotation about a horizontal axis by the nature of the pivot  
22 connection 28 as described below. The reverse curvature of the segment 24 allows a greater

1 range of height adjustment by the telescoping of the portion 21 into lower member 12, as the  
2 book support 44 can be lowered beneath the upper end of the lower upright member 12 as the  
3 straight portion 21 is telescoped into the lower upright member 12.

4 The pivot connection 28 includes a receptacle pivot fitting 32 having a tubular  
5 collar 34 attaching it to the straight end segment 26, and a vertical axis seat 36 integral therewith  
6 (Figure 3).

7 A pivot pin fitting 38 includes a tubular socket 40 rotatably mounting an enlarged  
8 end 31 of the swing arm 30 which has a groove 33 receiving a retention screw 35 threaded into  
9 the bottom of a hollow vertical axis pivot pin 42 (Figures 3 and 3A). The pivot pin 42 is  
10 removably received in the pivot seat 36 and fit to be held rotatable therein to create an  
11 articulation allowing the swing arm 30 to be swingable relative segment 26 about a vertical axis  
12 defined by the hollow pin 42. The swing arm 30 and attached book support 44 to be lifted out  
13 without requiring any disassembly. This allows ready removal of one book support and  
14 replacement with another having another book held thereon.

15 The swing arm 30 is also rotatable in the socket 40 about its own longitudinal axis  
16 to allow tilt adjustment of the book support 44 about a horizontal axis.

17 Referring to Figure 1, the straight horizontal segment 26 of the upper member 18  
18 can be rotated horizontally about a vertical axis defined by the lower upright member 12 and  
19 clamp assembly 22. This creates an articulation capability of the swing arm 30 and segment 20  
20 allowing them to be folded together or apart, in turn enabling an adjustment of the horizontal  
21 position of the book support 44 mounted to the free end of the swing arm 30. Thus, the book  
22 support 44 can be drawn horizontally closer or further away from the vertical axis defined by the

1 lower tube member 12 as desired to decrease or increase the distance from the upright to the  
2 book support 44.

3 The book support 44 in the example shown comprises a roughly rectangular  
4 generally planar stiff support piece 46 made of plastic, wood, metal or other rigid material and  
5 having a pair of plates 48 each held with an encircling strap 50 threaded through a respective set  
6 of slots in the piece 46 and the plates 48 as shown. Other configurations may be used, such as a  
7 V-shaped support piece.

8 The plates 48 each hold a front or back cover as well as some of the pages of a  
9 book, magazine, or other document to hold the book, magazine, etc., on the book support 44.

10 The term "book" is here used in its broadest sense to refer to books, magazines,  
11 and other multi-page documents or even a single page document, such as a chart, etc.

12 A pair of angled page wires 52 have one end of a first segment 53 attached to the  
13 piece 46 with a second segment 54 extending over one end of the front surface thereof. A ball tip  
14 56 is affixed to the free end of each page holder second segment 54. The page wires 52 may be  
15 made of music wire and heat treated to have memory like a spring.

16 As described in WO 99/09859, successive book pages can be conveniently turned  
17 and secured beneath a ball tip 56 by resilient deflectability of the second segment 54 allowing the  
18 same to be pulled out to turn pages and then upon release urging a ball tip 56 back into contact  
19 therewith. The friction is set to blow a single page to be slipped out from under a ball tip 56, but  
20 prevents the page from turning on its own.

21 Support piece 46 of the book support 44 may be made sufficiently large  
22 (approximately 16 x 20 inches) to accommodate most sizes of documents desired to be held such

1 as books, magazines, brochures, catalogs, etc., in the opened condition. Smaller sized pieces 46  
2 may be provided as for use with paperbacks only.

3 A series of integral protrusions 45 are arranged along and cantilevered out from  
4 the bottom of the book support piece 44.

5 The outboard free end 58 of the swing arm 30 is flattened and welded or otherwise  
6 affixed to a disc 60 (Figures 4, 4A).

7 The disc 60 is in turn urged towards the support piece 46 and against an  
8 interposed bearing disc 62 by a spring 64 compressed beneath the head 65 of a retention pin 66  
9 passing through a centrally located hole in the piece 46. A second head 67 retains the pin 66.  
10 The bearing disc 62 is also in turn urged against the rear surface of the piece 46 to create a  
11 frictional engagement resisting rotation of the support piece 46 about the pin 66.

12 However, a user can adjust the orientation of the book support 44 by exerting  
13 sufficient turning force thereon to overcome the friction and turn the support 44 to another  
14 adjusted position. The axis of adjustment is defined by the pin 66 and thus extends normally to  
15 the plane of the book support 44 and transversely to the longitudinal axis of the swing arm 30.

16 Thus, the book support 44 can be turned sideways, as seen in Figure 6, to any  
17 desired angle. This allows the book support 44 to be repositioned to be horizontal if the swing  
18 arm 30 sags from the weight of a held book or if the base assembly 14 is resting on an uneven  
19 floor. Also, it enables sideways positioning of an opened book so that a person can read a book,  
20 magazine, etc., while reclining and facing one side of the bed, couch, etc.

21 This point connection also allows repositioning the book support 44 to the right or  
22 left of the lower upright member 12 without disassembly. This is done by pivoting the book



1 support 44 upside down, swinging the same to the other side of the member 12, and then flipping  
2 the book support 44 to reverse its position to be forward of the swing arm 30.

3 This pivot capability also allows reorienting the support piece 46 to enable  
4 viewing of documents which are larger in the vertical direction than usual (such as newspapers)  
5 or are bound at the top or bottom and thus further enhances the utility of the book holder  
6 assembly 10.

7 As shown in Figure 2, the clamp assembly 22 includes a split sleeve, with two  
8 half moon pieces 68 held together with members 20, 12 of the upright assembly 18 clamped  
9 therebetween by screws 70 and nuts 72 and threaded rods 74 affixed to knobs 76A, 76B. Curved  
10 pieces 73A, 73B are sized to fit to the upper member 20 and lower member 12, respectively. By  
11 loosening rotation of the lower knob 76B, the upright member 20 can turn to swing the  
12 horizontal segment 20 of the upper member 20 to position the book support piece 44 with respect  
13 to the base 14 as desired. Also any degree of friction grip can be selectively set by turning the  
14 lower knob 76B to make it harder or easier to swing the book support about the vertical axis  
15 defined by the lower member 12.

16 Loosening the upper knob 76A, frees the upper member 20 of the upright to be  
17 raised (or lowered) within the lower member 12.

18 The base assembly 14 includes a mounting platform 78 of cast iron having molded  
19 bores 82 into which are fit a pivot pin mount 80 of each caster 16 (Figure 5).

20 Integral stiffening ribs 84 converge at the center, with a boss 86 formed with a  
21 bore 88 receiving a threaded end 90 of the lower upright member bottom end 12B, retained by a  
22 nut 92 and washer 94. The ribs 84 keeps the platform 78 from deforming during cooling of the

1 casting to insure a flat surface.

2 A molded plastic cover 96 is configured to be received atop the platform 78, a  
3 bore 98 thereby aligned with bore 86 to allow passage of the threaded end 90. The cover 96 can  
4 also be made of wood, metal, etc.

5 Figure 7 shows a book rack-shelf support structure 100 having upper and lower  
6 pieces 102A, 102B having aligned bores receiving the lower upright member 12. The book rack-  
7 shelf structure 100 rests atop the platform 78 base assembly 14, and two or more shelves 104,  
8 106, and a magazine rack 108 are affixed to side rails 110.

9 The book holder assembly 10 described above is very convenient in use, freely  
10 allowing many positional and orientation adjustments to be made to the book support to  
11 accommodate any conceivable desire of the user without requiring disassembly or the  
12 manipulation of knobs, etc., other than the loosening of the knob 76A for height adjustment.  
13 Also, the book support 44 can be simply swung out of the way to enable the user to move past  
14 the same without disturbing most of the adjustments, nor moving the book holder assembly itself.